

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (currently amended): A channel estimation circuit comprising:

a tentative channel estimation means for being input with a received signal and performing channel estimation by making use of the received signal and outputting the result of estimation as a tentative channel estimation signal;

a noise/interference power estimation means for being input with signals, including at least, the received signal, among the received signal, the tentative channel estimation signal and a channel estimation signal, and performing estimation of noise and interference power by making use of the input signals, to output the result of estimation as a noise/interference power estimation signal;

a threshold decision means for being input with signals, including at least, the noise/interference power estimation signal, among the noise/interference power estimation signal and the tentative channel estimation signal, and establishing and outputting a threshold signal by making use of the input signals; and

an effective path detection means for being input with the tentative channel estimation signal and the threshold signal and, after removing noise paths having powers smaller than the threshold signal among paths of the tentative channel estimation signal, ~~and~~ outputting the remaining signal as the channel estimation signal.

2. (original): The channel estimation circuit according to Claim 1, wherein the threshold decision means outputs the signal as the threshold signal, after having multiplied the noise/interference power estimation signal by an arbitrary constant.

3. (original): The channel estimation circuit according to Claim 1, wherein the noise/interference power estimation means performs estimation of noise and interference power, by making use of the received signal and the tentative channel estimation signal before the channel estimation signal is input, and performs estimation of noise and interference power, by making use of the received signal and the channel estimation signal after the channel estimation signal has been input.

4. (currently amended): The channel estimation circuit according to Claim 1, wherein the threshold decision means initially sets the signal as the threshold signal after having multiplied the noise/interference power estimation signal by an arbitrary constant, subtracts  $x$ ,  $x$  being an arbitrary real number, from ~~at~~ the maximum path power, which is the power of the path having the maximum power among the paths of the tentative channel estimation signal, outputs the initially established threshold signal when the maximum path power minus  $x$  is greater than the initially established threshold signal, and outputs the maximum path power minus  $x$  as the threshold signal when the maximum path power minus  $x$  is equal to or smaller than the initially established threshold signal.

5. (original): The channel estimation circuit according to Claim 1, wherein the threshold decision means initially sets the signal as the threshold signal after having multiplied

the noise/interference power estimation signal by an arbitrary constant, calculates the sum of the powers of the paths having powers which are equal to or greater than the initially established threshold signal among paths of the tentative channel estimation signal as a total effective power, outputs the initially established threshold signal when the total effective power becomes equal to or greater than  $y$ ,  $y$  being an arbitrary real number, and lowers the threshold signal until the total effective power is equal to greater than  $y$  when the total effective power is smaller than  $y$  and then outputs that threshold signal.

6. (original): A channel estimation method comprising:

a step at which a tentative channel estimation means being input with a received signal and performs channel estimation by making use of the received signal and outputs the result of estimation as a tentative channel estimation signal;

a step at which a noise/interference power estimation means being input with signals, including at least, the received signal, among the received signal, the tentative channel estimation signal and a channel estimation signal, and performs estimation of noise and interference power by making use of the input signals, to output the result of estimation as a noise/interference power estimation signal;

a step at which a threshold decision means being input with signals, including at least, the noise/interference power estimation signal, among the noise/interference power estimation signal and the tentative channel estimation signal, to establish and output a threshold signal by making use of the input signals; and

a step at which an effective path detection means being input with the tentative channel estimation signal and the threshold signal and, after removing noise paths having powers smaller

than threshold signal among paths of the tentative channel estimation signal, outputs the remaining signal as the channel estimation signal.

7. (new): A channel estimation circuit comprising:

a tentative channel estimation unit that performs a channel estimation by using a received signal and outputs the channel estimation as a tentative channel estimation signal;

a noise/interference power estimation unit that is input with signals comprising at least the received signal among the received signal, the tentative channel estimation signal, and a channel estimation signal, performs an estimation of noise and interference power by making use of the input signals, and outputs the result of the estimation as a noise/interference power estimation signal;

a threshold decision unit that is input with the noise/interference power estimation signal and optionally the tentative channel estimation signal, and establishes and outputs a threshold signal using the noise/interference power estimation signal and, if input, the tentative channel estimation signal; and

an effective path detection unit that is input with the tentative channel estimation signal and the threshold signal and, after removing noise paths having powers smaller than threshold signal among paths of the tentative channel estimation signal, outputs a resulting signal as the channel estimation signal.

8. (new): The channel estimation circuit according to Claim 7, wherein the threshold decision unit outputs the threshold signal after multiplying the noise/interference power estimation signal by an arbitrary constant.

9. (new): The channel estimation circuit according to Claim 7, wherein the noise/interference power estimation unit performs the estimation of noise and interference power by using the received signal and the tentative channel estimation signal before the channel estimation signal is input, and performs the estimation of noise and interference power by making use of the received signal and the channel estimation signal after the channel estimation signal has been input.

10. (new): The channel estimation circuit according to Claim 7, wherein the threshold decision unit:

initially establishes the threshold signal as the noise/interference power estimation signal multiplied by an arbitrary constant;

subtracts  $X$ ,  $X$  being an arbitrary real number, from a maximum path power, which is the power of the path having the maximum power among the paths of the tentative channel estimation signal;

outputs the initially established threshold signal when the maximum path power minus  $X$  is greater than the initially established threshold signal; and

outputs the maximum path power minus  $X$  as the threshold signal when the maximum path power minus  $X$  is equal to or smaller than the initially established threshold signal.

11. (new): The channel estimation circuit according to Claim 7, wherein the threshold decision unit:

initially establishes the threshold signal as the noise/interference power estimation signal multiplied by an arbitrary constant;

calculates a total effective power which is a sum of the powers of the paths having power which is equal to or greater than the initially established threshold signal among the paths of the tentative channel estimation signal;

outputs the initially established threshold signal when the total effective power is equal to or greater than  $Y$ ,  $Y$  being an arbitrary real number, and

lowers the threshold signal until the total effective power is equal to greater than  $Y$  when the total effective power is smaller than  $Y$  and then outputs that threshold signal.

12. (new): A channel estimation method comprising:

inputting a received signal to a tentative channel estimation unit;

performing, by the tentative channel estimation unit, a tentative channel estimation using the received signal;

outputting a tentative channel estimation signal from the tentative channel estimation unit;

inputting to a noise/interference power estimation unit the received signal and optionally at least one of the tentative channel estimation signal and a channel estimation signal;

performing, by the noise/interference power estimation unit, an estimation of noise and interference power using the received signal, and if present, the at least one of the tentative channel estimation signal and the channel estimation signal;

outputting from the noise/interference power estimation unit a noise/interference power estimation signal;

inputting to a threshold decision unit the noise/interference power estimation signal and optionally the tentative channel estimation signal;

outputting from the threshold decision unit a threshold signal using the noise/interference power estimation signal and, if present, the tentative channel estimation signal;

inputting to an effective path detection unit the tentative channel estimation signal and the threshold signal;

generating, by the effective path detection unit, the channel estimation signal by removing noise paths with powers smaller than the threshold signal among paths of the tentative channel estimation signal; and

outputting the channel estimation signal from the effective path detection unit.